

WHAT WE CLAIM IS:

1. An image forming apparatus comprising: an image writing means employing organic EL elements; a direct current voltage applying means for applying a direct current voltage to said organic EL elements; and a control means for said direct current applying means; wherein

said control means controls said direct current voltage applying means to apply a direct current voltage (V_a), higher than 0V and lower than a threshold voltage, to said organic EL elements during non-printing.

2. An image forming apparatus as claimed in claim 1, wherein, at the start of said image writing means, said direct current voltage (V_a) is applied to said organic EL elements and then the image writing means is shifted to the printing state.

3. An image forming apparatus as claimed in claim 1 or 2, wherein said image writing means comprises a line head composed of light emitting element lines each of which has a plurality of organic EL elements aligned in the main scanning direction of the image carrier.

4. An image forming apparatus as claimed in claim 3, wherein said line head is composed of a plurality of said light emitting element lines aligned in the sub scanning direction.

5. An image forming apparatus as claimed in claim 4, wherein, when conducting multiple exposure by said image writing means, said direct current applying means is controlled to apply a direct current voltage, higher than

0V and lower than the threshold voltage, to all organic EL elements arranged in at least one of the light emitting element lines.

6. An image forming apparatus as claimed in claim 4,
5 wherein said direct current applying means is controlled to apply a direct current voltage, higher than 0V and lower than the threshold voltage, to at least one of the organic EL elements arranged in said light emitting element lines.

7. An image forming apparatus as claimed in any one
10 of claims 1 through 6, wherein said organic EL elements are controlled according to the intensity modulating control.

8. An image forming apparatus as claimed in any one
of claims 1 through 7, wherein said organic EL elements are connected to a driving circuit according to the active matrix
15 method.

9. An image forming apparatus comprising: an image carrier cartridge employing a line head composed of organic EL elements to which the control as claimed in any one of claims 3 through 8 is conducted, and comprising a charging
20 means, an exposure means, a developing means, and a transfer means which are arranged around an image carrier, wherein said image forming apparatus transfers a toner image formed on said image carrier onto a transfer medium.

10. An image forming apparatus comprising: an image
25 carrier, an image writing means employing organic EL elements, a direct current voltage applying means for applying a direct current voltage to said organic EL elements; and a control means for said direct current applying means; wherein

said control means controls said direct current voltage applying means to apply a direct current voltage (V_a), higher than a threshold voltage and lower than the voltage applied for printing, to said organic EL elements during non-printing
5 with said image carrier being moved.

11. An image forming apparatus as claimed in claim 10, wherein, at the start of said image writing means, said direct current voltage (V_a) is applied to said organic EL elements and then the image writing means is shifted to the printing
10 state.

12. An image forming apparatus as claimed in claim 10 or 11, wherein said image writing means comprises a line head composed of light emitting element lines each of which has a plurality of organic EL elements aligned in the main scanning
15 direction of the image carrier.

13. An image forming apparatus as claimed in claim 12, wherein said line head is composed of a plurality of said light emitting element lines aligned in the sub scanning direction.

20 14. An image forming apparatus as claimed in claim 12 or 13, wherein, when conducting multiple exposure by said image writing means, said direct current applying means is controlled to apply a direct current voltage, higher than a threshold voltage and lower than the voltage applied for
25 printing, to all organic EL elements arranged in at least one of the light emitting element lines.

15. An image forming apparatus as claimed in claim 13, wherein said direct current applying means is controlled to

apply a direct current voltage, higher than a threshold voltage and lower than the voltage applied for printing, to at least one of the organic EL elements arranged in said light emitting element lines.

5 16. An image forming apparatus as claimed in any one of claims 10 through 15, wherein said organic EL elements are controlled according to the intensity modulating control.

 17. An image forming apparatus as claimed in any one of claims 10 through 16, wherein said organic EL elements
10 are connected to a driving circuit according to the active matrix method.

 18. An image forming apparatus comprising: an image carrier cartridge employing a line head composed of organic EL elements to which the control as claimed in any one of
15 claims 12 through 17 is conducted, and comprising a charging means, an exposure means, a developing means, and a transfer means which are arranged around an image carrier, wherein said image forming apparatus transfers a toner image formed on said image carrier onto a transfer medium.

20 19. An image forming apparatus comprising: an image writing means employing organic EL elements and a control unit for said organic EL elements, wherein said control unit applies a voltage of opposite bias polarity i.e. a voltage of a polarity opposite to that of the voltage of bias polarity
25 for light emission (voltage of emission polarity).

 20. An image forming apparatus as claimed in claim 19, wherein the absolute value of said voltage of the opposite bias polarity is set to be larger than the absolute value

of said voltage of the emission polarity.

21. An image forming apparatus as claimed in claim 19, wherein the product of said voltage of the opposite bias polarity and its applying time is set to be larger than the
5 product of said voltage of the emission polarity and its applying time.

22. An image forming apparatus as claimed in claim 19, wherein at the start of said organic EL elements, said voltage of the opposite bias polarity is applied to the organic EL
10 elements prior to the application of said voltage of the emission polarity.

23. An image forming apparatus as claimed in claim 19, wherein the voltage of the opposite bias polarity and the voltage of the emission polarity are alternatively applied
15 to said organic EL elements.

24. An image forming apparatus as claimed in any one of claims 19 through 23, wherein said organic EL elements are connected to a driving circuit according to the active matrix method.

20 25. An image forming apparatus comprising: an image carrier cartridge employing a line head composed of organic EL elements to which the control as claimed in any one of claims 19 through 24 is conducted, and comprising a charging means, an exposure means, a developing means, and a transfer
25 means which are arranged around an image carrier, wherein said image forming apparatus transfers a toner image formed on said image carrier onto a transfer medium.

26. An image forming apparatus comprising: a charge

bias applying means for a photoreceptor, a development bias applying means, organic EL elements in groups for forming an image on an image carrier, and a density control means for patch images, wherein

5 said organic EL elements in group(s) are controlled to be all lighted before formation of the patch images.

27. An image forming apparatus as claimed in claim 26, wherein at least organic EL elements in group(s) which form the patch images among said organic EL elements in groups
10 are controlled to be all lighted before formation of the patch images.

28. An image forming apparatus as claimed in claim 26, wherein said organic EL elements in all groups are controlled to be all lighted before formation of the patch images.

15 29. An image forming apparatus as claimed in any one of claims 26 through 28, wherein said organic EL elements in group(s) are controlled to be all lighted before application of the charge bias to said photoreceptor.

30. An image forming apparatus as claimed in claims
20 26 through 28, wherein said organic EL elements in group(s) are controlled to be all lighted before application of the development bias.

31. An image forming apparatus as claimed in any one of claims 26 through 30, wherein said organic EL elements
25 in groups are controlled to be all lighted at pauses in application of development bias.

32. An image forming apparatus comprising: a charge bias applying means for a photoreceptor, a development bias

applying means, organic EL elements in groups for forming an image on an image carrier, and a density control means for patch images, wherein

it is controlled to form patch images in an order from
5 the highest density to the lowest density stepwise.

33. An image forming apparatus comprising: a charge bias applying means for a photoreceptor, a development bias applying means, organic EL elements in groups for forming an image on an image carrier, and a density control means
10 for patch images, wherein

said organic EL elements in group(s) are controlled to be all lighted before formation of the patch images and it is controlled to form patch images in an order from the highest density to the lowest density stepwise.

15 34. An image forming apparatus as claimed in claim 32 or 33, wherein said patch images are formed by controlling at least organic EL elements in group(s) which form the patch images to be all lighted.

35. An image forming apparatus as claimed in claim 33,
20 wherein said organic EL elements in all groups are controlled to be all lighted before formation of the patch images.

36. An image forming apparatus as claimed in claim 33, wherein said organic EL elements in group(s) are controlled to be all lighted before application of the charge bias to
25 said photoreceptor.

37. An image forming apparatus as claimed in claim 33, wherein said organic EL elements in group(s) are controlled to be all lighted before application of the development bias.

38. An image forming apparatus as claimed in claim 33, wherein said organic EL elements in group(s) are controlled to be all lighted at pauses in application of development bias.

5 39. An image forming apparatus comprising: an image writing means having a plurality of light emitting element lines aligned in the sub scanning direction of an image carrier, each light emitting element line being composed of a plurality of organic EL elements aligned in the main scanning direction
10 of the image carrier and arranged two-dimensionally; and a control unit for said organic EL elements; wherein

 said control unit controls such that at least one organic EL element of the plural organic EL elements for forming a latent image of the same dot by means of multiple exposure
15 is lighted at least once during the formation of the latent image of the same dot.

 40. An image forming apparatus as claimed in claim 39, wherein said control unit controls such that the organic EL elements corresponding to non-printing portions or non-image
20 portions among said organic EL elements are at least once during the formation of the latent image of the same dot.

 41. An image forming apparatus comprising: an image writing means having a plurality of light emitting element lines aligned in the sub scanning direction of an image carrier,
25 each light emitting element line being composed of a plurality of organic EL elements aligned in the main scanning direction of the image carrier and arranged two-dimensionally; and a control unit for said organic EL elements; wherein

said control unit controls such that organic EL elements of at least one of the light emitting element lines arranged in the main scanning direction are all lighted and the line to be subjected to the all-element lighting is switched at
5 predetermined interval.

42. An image forming apparatus as claimed in claim 41, wherein said control unit controls such that the organic EL elements of one light emitting element line are all lighted once every formation of latent image of one main scanning
10 line and the line to be all lighted is changed every main scanning line.

43. An image forming apparatus as claimed in claim 41, wherein said control unit controls such that the number of times of all-element lightning to a light emitting element
15 line is set to be higher when the light emitting element line is positioned farther from the center axis of a rod lens array.

44. An image forming apparatus as claimed in claim 41, wherein said control unit controls such that the light emitting element line to be all lighted is changed every formation
20 of image on page when the image is formed on a full page.

45. An image forming apparatus as claimed in any one of claims 39 through 44, wherein said organic EL elements are connected to a driving circuit according to the active matrix method.

25 46. An image forming apparatus comprising: an image carrier cartridge employing a line head composed of organic EL elements to which the control as claimed in any one of claims 39 through 45 is conducted, and comprising a charging

means, an exposure means, a developing means, and a transfer means which are arranged around an image carrier, wherein said image forming apparatus transfers a toner image formed on said image carrier onto a transfer medium.